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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/770,788

01/26/2001

Louis L. Hsu

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(YOR9-2000-0858)

8269

7590

04/30/2003

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EXAMINER

NGUYEN, DAO H

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 04/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/770,788

Applicant(s)

HSU ET AL.

Examiner

Dao H Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 43-46 and 51-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 43-46 and 51-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. In response to the communications dated 04/04/2003, claims 43-46 and 51-53 are active in this application as a result of the cancellation of claims 47-50 and 54-55.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 in view of the AIPA and H.R. 2215 that forms the basis for the rejections under this section made in the attached Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 43, 44, and 51 are rejected under 35 U. S. C. § 102 (e) as being anticipated by U.S. Patent No. 6,229,161 to Nemati et al.

Regarding claim 43, Nemati et al. discloses a memory system, as shown in figure 6a, comprising a plurality of T-RAM memory cells arranged in an array (column 2, line 29-65), wherein each of the plurality of T-RAM memory cells includes a first and a second horizontal device (NDR Device and Access Transistor, respectively), the first and second horizontal device being approximately the same height, each of the first and

second horizontal device having a planar top surface. See figure 6a and also column 6, lines 18-58.

Regarding claim 44, Nemati et al. discloses the memory system wherein the first horizontal device (NDR Device) is a thyristor and the second horizontal device (Access Transistor) is a transfer gate. See figure and column 4, lines 7-36.

Regarding claim 51, Nemati et al. discloses the memory system wherein the first device (NDR Device) is a p-MOS device and the second device (Access Transistor) is an n-MOS device. See figure 6a.

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 45, 46, 52, and 53 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,229,161 to Nemati et al., in view of Iwamuro, U.S. Patent No. 5,936,267, and further in view of the following remarks.

Regarding claims 45 and 46, Nemati et al. discloses the memory system comprising all the claimed limitation, except for the transfer gate comprises a halo

region of a single polarity, and the thyristor also has a halo region, wherein the two halo regions are fabricated in the same steps. Iwamuro discloses a device as shown in figures 1, 6b, and 7, having a halo regions 4, 6 (fig. 7) of a single polarities (P-type). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Nemati et al. so that the transfer gate and the thyristor would have the halo regions as that of Iwamuro in order to decrease the on-state voltage and improve the reverse bias safe operation area (RBSOA) independently of the rated voltage of the device. See column 11, lines 44-52 of Iwamuro. In addition, it would have been obvious to one having ordinary skill in the art that the halo regions of the transfer gate and the thyristor could be fabricated in the same steps in order to save time as well as to save the cost of the product.

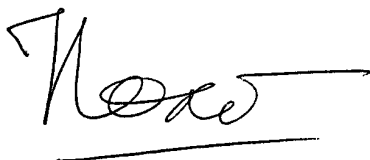
Regarding claims 52 and 53, Nemati et al., in view of Iwamuro, and further in view of the above remarks disclose all the claimed limitations. Note that it would have been obvious to one having ordinary skill in the art that, technically, for a p-MOS, the halo region should be of n-type, and for an n-MOS, the halo region should be of p-type.

Conclusion

6. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao H. Nguyen whose telephone number is (703) 305-1957. The examiner can normally be reached on Monday-Friday, 9:00 AM – 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (703) 308 - 4910. The fax numbers for Customer Service is (703) 872-9317, for the organization where this application proceeding is assigned is (703) 872-9318 for regular (Before Final) communications or (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Dao H. Nguyen
Art Unit 2818
April 23, 2003



HOAI HO
PRIMARY EXAMINER